

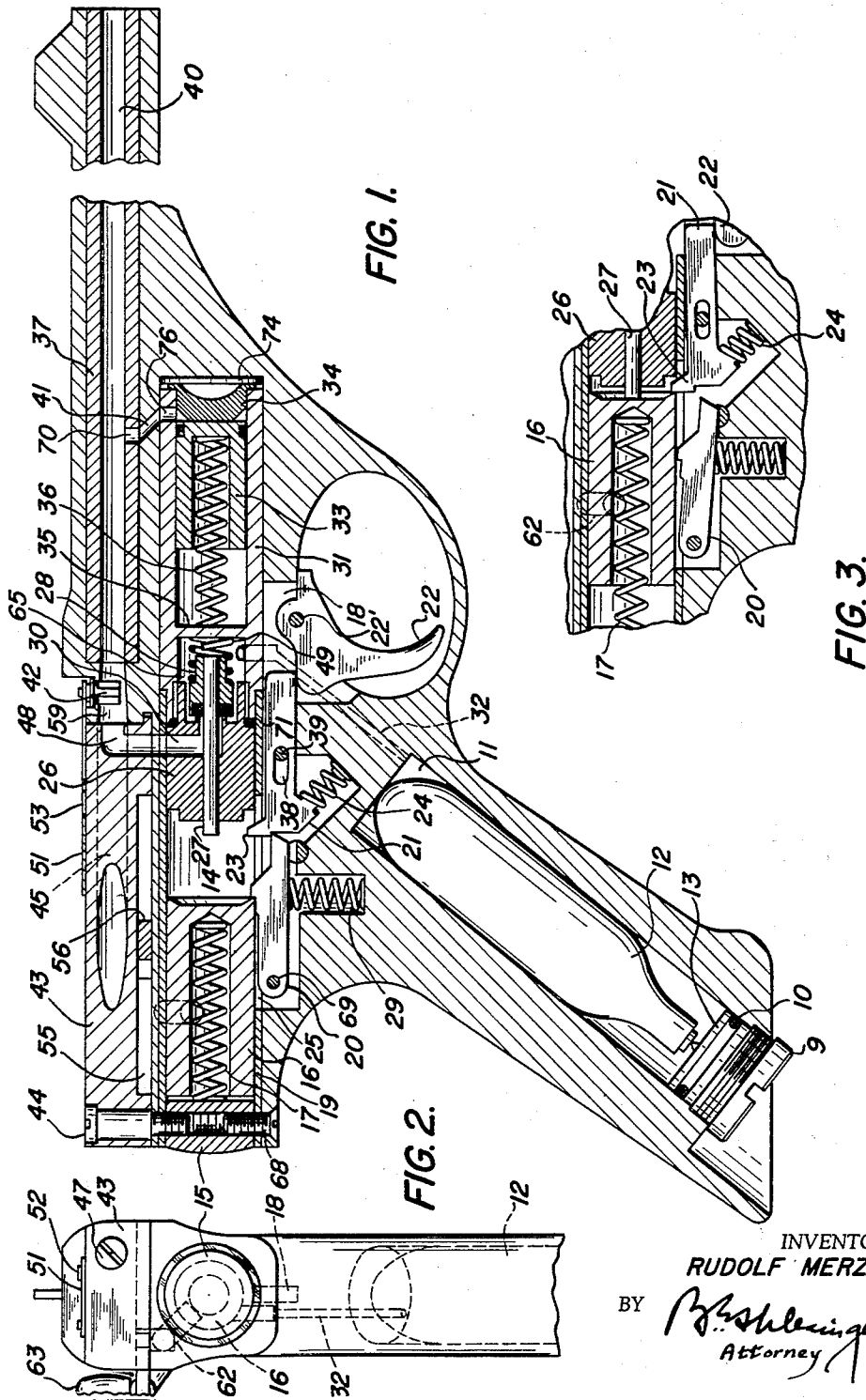
June 14, 1960

R. MERZ  
MAGAZINE GUN

2,940,438

Filed July 30, 1957

2 Sheets-Sheet 1



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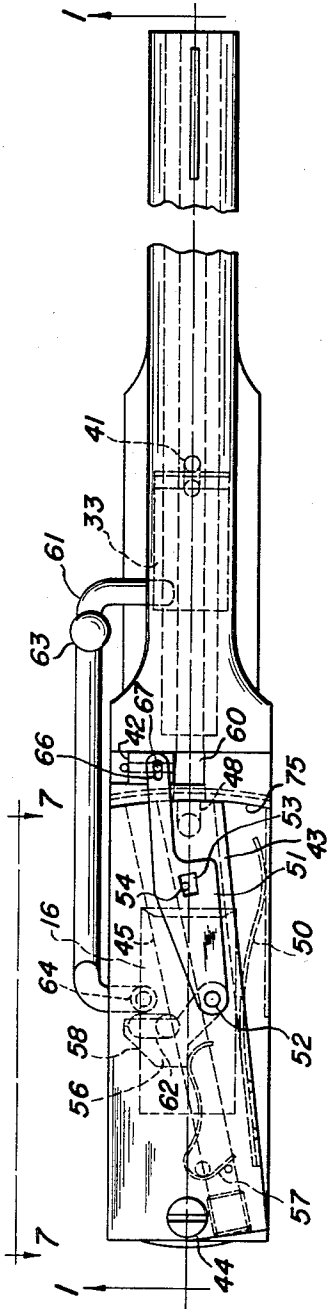


FIG. 4.

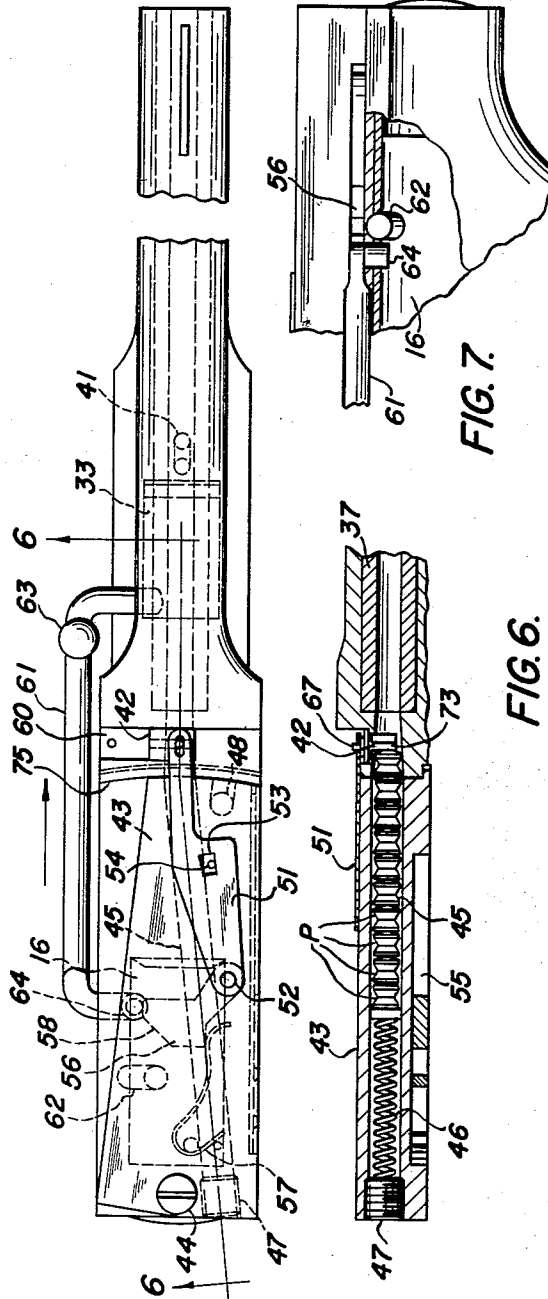


FIG. 7.

FIG. 6.

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## MAGAZINE GUN

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16 Claims. (Cl. 124—11)

The present invention relates to semi-automatic, gas-powered guns, and more particularly to pellet guns of the type commonly used for target shooting and for shooting small game.

Semi-automatic guns that have been available in the past have usually required some form of movable slide or arm to transfer the foremost piece of ammunition from the magazine to the breech. Loading mechanisms of this type require many moving parts and are therefore costly to manufacture. Moreover, such loading mechanisms always present problems in obtaining an effective seal of the breech during firing, and usually, the breech can only be closed by complex mechanical means.

An object of the present invention is to provide a magazine mechanism for a gun which is simple and more direct in operation than known gun loading mechanisms.

Another object of the invention is to provide a magazine mechanism for a gun by which the cartridges or pellets may be fed directly from the magazine into the breech of the gun, without any pickup arm or other mechanical transfer mechanism.

Another object of the invention is to provide a gas-powered pellet gun having a magazine adapted to be operated on firing of the gun to feed a pellet from the magazine into the gun barrel ready for propulsion from the gun the next time the gun is fired.

Another object of the invention is to provide a loading mechanism of the character described that can be operated from the propellant gas of the gun.

Another object of the invention is to provide a gas-operated gun in which the gun is not only loaded automatically by mechanism operated by the propellant gas upon firing, but is also automatically cocked.

Still another object of the invention is to provide a gas-powered magazine pellet gun of simple, inexpensive construction, having relatively few moving parts, and having a more rugged construction than has previously been possible.

One embodiment of the invention is illustrated in the drawings. The embodiment shown is a gas-operated pellet-firing pistol. In this embodiment, the gun is formed with a chamber for containing gas under pressure, and with a passage that connects this chamber with the breech end of the bore of the gun barrel. A normally-closed poppet valve is mounted in this passage. The hammer of the gun is mounted to be released when the trigger is pulled, to open the poppet valve to permit flow of the gas under pressure through said passage into the barrel of the gun at the breech end thereof to propel a pellet from the gun.

The gun barrel has a port in it midway of its length through which the propellant gas flows, after firing, to effect movement of a spring-retained piston that operates to cock the hammer, and to operate the loading mechanism to place a new pellet in the breech from the magazine.

The magazine is mounted to pivot about a vertical axis, and is formed with a bore that holds the pellets

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in columnar, or tandem fashion. The magazine is pivoted by mechanism actuated by the piston to place its bore in communication with the bore of the gun barrel, to permit a pellet to be loaded into the breech of the gun each time the gun is fired.

Details of construction of the illustrated embodiment of the invention can best be understood by consideration of the drawings, together with the detailed description thereof that follows:

In the drawings:

Fig. 1 is a section of a pistol constructed according to one embodiment of the invention taken on the line 1—1 in Fig. 4, looking in the direction of the arrows;

Fig. 2 is a fragmentary rear elevation of the gun;

Fig. 3 is a fragmentary sectional view showing the positions of the hammer, sear, and trigger of the gun, at the limit of forward movement of the hammer, after the trigger has been pulled;

Fig. 4 is a plan view of the gun in uncocked, unloaded condition;

Fig. 5 is another plan view, showing the gun during loading, with the magazine block rotated through an angle so the bore of the magazine communicates directly with the bore of the gun barrel to load a pellet directly into the bore of the gun;

Fig. 6 is a section taken on the line 6—6 of Fig. 5, looking in the direction of the arrows; and

Fig. 7 is a partial side elevation of the gun taken on the line 7—7 of Fig. 4, parts being broken away, also, for illustration.

Referring now in detail to the drawings, the grip or stock of the gun is formed with a chamber 11 (Fig. 1) in which a conventional gas cartridge 12 and piercer 13 therefor are mounted. Chamber 11 is closed by a nut 9 that threads into the lower end of the chamber. An O-ring 10 is interposed between this nut and the piercer 13; and the piercer is moved into position to pierce the normally-sealed cartridge 12 by threading nut 9 inwardly. After the normally-closed end of cartridge 12 has been pierced, leakage of the gas from the chamber 11 to atmosphere is prevented by sealing O-ring 10 and screw 9.

The gun body is formed with an elongate cylindrical bore 14 that extends lengthwise of the gun, and that is blind at its front end. Rigidly secured in the bore 14 at the rear thereof is a tube or sleeve 19 that is closed at its rear end by a removable plug 15. Plug 15 and tube 19 are secured to the body of the gun by screws 68 and 44.

A cup shaped hammer 16 is reciprocally mounted in the rear end of the bore of tube 19, with the closed end of the hammer disposed toward the front end of the gun. A spring 17 is engaged in the hollow portion of the hammer, and is interposed between the front end of the hammer and the plug 15, constantly to urge the hammer forward in the tube 19.

The body of the gun is also formed with an elongate channel or slot 18 that extends lengthwise of the gun beneath tube 19 for a part of the length of this tube. This channel or slot 18 communicates along part of its upper side with a slot 25 in the bottom of the tube 19 and with bore 14. A spring-pressed sear 20 is pivotally mounted in the slot 18 on a pin 69 to swing through slit 25 into the bore 14 to engage the front face of the hammer 16, to hold the hammer in cocked position. The sear is constantly urged to operative position by a coil spring 29.

An intermediate sear or rocker arm 21 is pivotally and slidably mounted in channel 18. It is formed with an elongate slot 38 in which its pivot pin 39 is engaged. The intermediate sear 21 is formed with an upstanding protrusion 23 that engages over the front end of the

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sear 20 when the gun is cocked. This protrusion projects into the path of the hammer 16 to be engaged by the hammer, as shown in Fig. 3, when the gun is fired, to cushion the terminal forward movement of the hammer upon firing. The rear end of the intermediate sear is constantly spring-pressed upwardly and rearwardly by a spring 24, that is interposed between the rear end of the intermediate sear and an inclined surface that is formed in the body of the gun. There is sufficient space between the upper face of the intermediate sear and tube 19 to permit sliding and pivotal movement of the intermediate sear.

A trigger 22 is pivotally mounted by means of pin 22', in position to rock the intermediate sear 23 in a counter-clockwise direction, as viewed in Fig. 1, to depress the sear 20, to release the hammer 16, to fire the gun.

A valve block 26 is mounted in tube 19 and is held in fixed central position in the bore 14 by tube or sleeve 31 and an O-ring 71 that are mounted in bore 14. Tube 31 seats at its forward end against a stop 34 which has a flanged portion at its front end that is engaged between the front end of tube 31 and the disc 74. Tube 31 is held in place by tube 19 which telescopes over the rear end of tube 31. Block 26 is formed with a bore that is coaxial with the bore 14. The elongate stem 27 of a poppet valve 28 is reciprocally mounted in the bore of the block 26. A passage 30 is provided through the valve block 26. This passage extends axially of the block 26, about half-way through the block, in axial alignment with its bore, as an annular clearance around the stem 27; and it has a radial extension that is directed upwardly through the block 26.

Valve 28 is provided with a resilient, compressible gasket or seal at its rear end to engage against the front face of the block 26, over the passage 30, when the valve is closed. A coil spring 49 which is interposed between the valve 28 and the web 35 of tube 31, constantly urges the valve 28 to close position.

A cup-shaped piston 33 is mounted for reciprocation in the tube 31 between a dome-shaped stop 34 and the web 35. A return spring 36 is engaged in the hollow part of the piston 33, and is interposed between the front end of the piston and the web 35, constantly to urge the piston to the front end of the cylinder 31.

A gun barrel 37 of conventional type is mounted on the gun body with its bore 40 disposed so its axis is parallel to the axis of the bore 14. There is a port 76 in the gun barrel 37 intermediate the ends of the gun barrel. A duct 41, which is formed in the body of the gun, connects this port with a port 76 in the tube 31 beyond the forward limit of movement of the piston 33.

The breech of the gun is formed with a bore 59 that communicates with and that is aligned with the bore 40 of the gun barrel at the rear end of said bore 40. A slide 42 is mounted to reciprocate in the breech bore 59 in a slot 60 (Fig. 5) that extends transversely to the axis of the gun barrel. The slot 60 communicates with bore 59 across the axis of said breech bore. This slide 42 is adapted to be moved into and out of the bore 59 of the breech. It is T-shaped in cross-section as shown in Figs. 1 and 6. Its vertical leg 73 acts as a stop, as will be described further hereinafter.

A magazine 43 is mounted on the rear of the gun body, to pivot about a vertical axis on the pin 44. Pin 44 threads through a thin-sectioned portion of the body of the gun, and through the tube 19 into the block 15. As best shown in Figs. 4 and 5, the front face of the magazine block is curved about the vertical axis of the pin 44; and it slides on a correspondingly curved guideway 75 (Figs. 4 and 5) formed on the rear face of the breech.

The magazine 43 is provided with a bore or pellet chamber 45 that extends from the rear face of the magazine to its curved front face, as best shown in Fig. 6. The pellet chamber 45 is disposed so that at one ex-

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treme pivoted position of the block 43, the pellet chamber communicates with the breech bore 59 of the gun (Figs. 5 and 6). A threaded plug 47 is screwed into the rear end of the magazine, to close the pellet chamber at its rear end. A spring 46 is mounted in the pellet chamber 45 with the rear end abutting against the plug 47, and with its front end abutting against the rearmost pellet in the magazine, constantly to press the pellets forward.

A conduit 32 (Fig. 1) extends through the body of the gun and through the wall of the tube 31, to provide communication between the chamber 11 and the chamber 65 which is formed in tube 31 between the block 26 and the web 35 of tube 31. The duct 32 conducts gas under pressure from the chamber 11, into the chamber 65. At its forward end, the magazine block is formed with a duct 48 that is adapted to register, as shown in Fig. 4, with the breech bore 59 to provide communication between the valve passage 30 and the breech bore 59, when the magazine block 43 is in the position shown in Fig. 4.

A leaf spring 50 (Fig. 4) is interposed between the body of the gun and the magazine 43, constantly to urge the magazine in one direction to one limit of its pivotal movement, namely, to the position shown in Fig. 4.

A lever 51 (Figs. 4 and 5) is pivotally mounted on the upper surface of the magazine block 43. This lever is secured at its rear end to a pivot pin 52 that is rotatable in block 43. The lever 51 is formed intermediate its ends with a slot 53. At its front end, the lever 51 is pivotally connected by means of slot 66 and pin 67 to the slide 42, to move the slide in the guideway 60 as the lever 51 pivots. A pin 54 mounted in the magazine block 43 engages in a slot 53, to limit the angular movement of the lever 51 relative to the magazine 43 while allowing some restricted relative movement between them.

As is apparent from Fig. 6 the distance between the rear face of the leg 73 and the front of the magazine 43 is just enough to accommodate one pellet P. When the chamber 45 of the magazine 43 is in communication with the breech bore 59, the leg 73 of the slide 42 extends across the breech bore 59. In this position, the urging of the spring 46 forces one pellet into the breech bore 59 against the rear surface of leg 73. The lateral pivoting lost motion between the magazine 43 and the lever 51 resulting from movement of a pin 54 in the slot 53 causes the magazine 43 to pivot the chamber 45 out of communication with the breech bore 59 prior to or ahead of the movement of the vertical leg 73 out of the breech bore 59. Thus, it is apparent that more than one pellet is prevented from entering the breech bore 59.

The undersurface of the magazine block 43 is milled out to provide a transverse slot 55. A pawl 56 is mounted for limited pivotal movement in the slot 55. This pawl is rigidly secured to pin 52. A spring 57 is mounted in the slot 55 to engage against the pawl, to resist movement of the pawl in a counter-clockwise direction as viewed in Fig. 4. The pawl is formed with an inclined cam surface 58.

A cocking rod 61 is rigidly secured to the piston 33 to reciprocate upon reciprocation of the piston. At its rear end, the cocking rod 61 is formed with a stud 64. This stud is mounted to engage a pin 62 (Fig. 7) on the hammer 16 upon rearward movement of the piston 33. The cocking rod is mounted to engage the pawl 56, to rotate the pawl in a counter-clockwise direction, as viewed in Fig. 4, when the cocking rod is moved to the rear by the rearward movement of the piston 33. On the return movement of the piston 33 under actuation of the spring 36, the stud 64 rides on the cam surface 58 of the pawl 56, rocking the pawl 56 and the lever 51 clockwise, as viewed in Fig. 4.

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A knob 63 is secured on the cocking rod 61, to permit manual operation of the cocking rod.

To use the gun, a plurality of pellets P are placed in the pellet chamber 45 of the magazine block, in tandem or columnar fashion. The coil spring 46 is then placed behind the last pellet and compressed by threading the plug 47 into the magazine block. Initially, the magazine block will be in the position shown in Fig. 4. To cock the gun for firing the first time, the knob 63 of the cocking rod 61 is grasped and the rod is pulled manually to the rear. As the rod is moved to the rear, the stud 64 engages against the pin 62 that is secured to the hammer 16, to move the hammer to the rear against the resistance of the spring 17. At the same time piston 33 moving with rod 61, compresses spring 36.

As the cocking rod 61 is moved to the rear, the cocking rod 61 also engages against the pawl 56, and rotates the pawl in a counter-clockwise direction, as viewed in Fig. 4, to move the lever 51 counter-clockwise also, as viewed in Fig. 4, until the lower edge of slot 53 abuts against pin 54. Then lever 51 may carry magazine 43 with it a slight distance counter-clockwise. As soon as the end of the cocking rod 61 clears the pawl, however, the spring 57 returns the pawl to its normal position, moving the lever 51 to the extent permitted by slot 53, that is, until the upper end (as viewed in Figs. 4 and 5) of the slot 53 abuts against the pin 54.

When the cocking rod 61 is released, the spring 36 moves the piston 33 forward, to its original position. As the cocking rod is moved forward, its rear end rides on the cam surface 58 of the pawl 56, swinging the lever 51 clockwise and moving slide 42 into position, to close the breech bore 59. At the same time lever 51 acts through pin 54 to swing the magazine block 43 clockwise about its pivot pin 44 against the resistance of the spring 50. The magazine block is thus forced to rotate clockwise to the position shown in Fig. 5, where the pellet chamber 45 registers with the breech bore 59. The foremost pellet P in the magazine then enters the breech bore 59, as shown in Fig. 6, abutting against the leg 73 of the slide 42.

When the cocking rod 61 has been moved sufficiently far forward so that it clears the pawl 56, the leaf spring 50 expands and rotates the magazine in a counter-clockwise direction, to return it to the position shown in Fig. 4. This leaves the one pellet in the breech bore 59, other pellets being prevented from entering the breech bore 59, first by the leg 73 of slide 42, and then by the curved wall 75 on which the front face of the magazine slides.

Due to the lost motion between the slot 53 and the pin 54, the slide 42 remains in closed position to close the breech until the pellet chamber 45 has been moved out of communication with the breech bore 59. The pin 54 then bears against the upper side (as viewed in Figs. 4 and 5) of the slot 53, to carry the lever 51 with the magazine to move the slide 42 to open position out of the breech bore 59.

When the magazine has been returned to the position shown in Fig. 4, the conduit 48 in the magazine is positioned to connect passage 30 (Fig. 1) in block 26 with bore 40 of the gun barrel.

The gun is now ready for firing.

When the trigger 22 is pulled, the intermediate sear or rocker arm 21 is rotated in a counter-clockwise direction, to cause the sear 20 to pivot in a clockwise direction, to release the hammer 16. The compressed spring 17 forces the hammer 16 forward, to move the valve stem 21 and the dog 23 on the intermediate sear 21 forward. The forward movement of the valve stem 21 lifts the valve 28 off its seat, to establish communication between the gas under pressure in the chamber 11 and the gun barrel, through the conduit 32, the chamber 65 in the cylinder 31, the passage 30, the conduit 48. The forward movement of the intermediate sear 21 causes this intermediate sear to disengage the sear 20.

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Gas under pressure then flows into the gun barrel, and propels the pellet forwardly out through the gun barrel. When the pellet has moved forward past the port 70, the propelling gas flows from the bore of the barrel through the conduit 41, and port 76 into the bore of the cylinder 31, where it acts on the piston 33 and moves the piston to the rear.

As the piston 33 is moved to the rear, the cocking rod 61 is carried to the rear also. The end of the cocking rod engages the stud 62 on the hammer, and forces the hammer to the rear, compressing the hammer spring 17. The sear 20 then returns to locking position with respect to the hammer under urging of the sear spring 29; and the hammer is held in cocked position. When the trigger is released, the intermediate sear 21 is rotated in a clockwise direction and at the same time is moved to the rear of the gun, by action of the spring 24, to engage the sear.

As the cocking rod is carried to the rear, its rear end engages the pawl 56 and rocks the pawl counter-clockwise, and then rides clear of it as previously described, exactly as when the gun was cocked manually initially. The pawl therefore is rocked clockwise by the spring 57, to the limit of its normal position. Thus, when the return spring 36 expands to force the piston 33 and the cocking rod 61 forward, the end of the cocking rod engages and rides on the cam surface 58 of the pawl. Lever 51 is thus rocked to rotate the magazine block 43 in a clockwise direction, in the manner previously described, to load the gun. The vertical leg 73 of the T-shaped slide 42 permits the entrance of only one pellet at a time into the breech bore 59.

As before, when the cocking rod 61 rides off the tip of the pawl 56, spring 50 rocks magazine block 43 counter-clockwise to bring duct 48 into registry with the bore 59 of the breech, and then pin 54 engages the upper side of slot 33 in lever 51 to rock the lever counter-clockwise to move slide 42 out of the breech bore to its position shown in Fig. 4. Thus, before the slide 42 is moved to withdraw the leg 73 from the bore 59, the magazine is moved away so that the pellets are held in the chamber 45 by the curved guideway 75 while a single pellet is held in the breech bore 59 by the front face of the magazine. After the cocking rod and piston have completed their forward movements, and after the magazine has returned to its normal position as shown in Fig. 4, the gun is cocked, loaded, and ready again to be fired.

From the preceding it will be seen that magazine block 43 acts not only as a movable magazine to supply pellets directly into the bore of the breech, but also, in effect, as a valve, closing off duct 48 from communication with breech bore 59 in the position of Fig. 5, and effecting communication between the duct 48 and bore 59 in the position of Fig. 4.

It will be noted that the magazine loads directly into the breech, and that no intermediate transfer arm or slide is required. Furthermore, there are relatively few parts in the loading mechanism, and a construction, that is relatively inexpensive, not likely to get out of order, and easy to maintain, results. Gas power is employed to load and to cock the gun, so that semiautomatic operation is obtained. However, as will be understood by those skilled in the art, by making appropriate changes in the sear mechanism, fully automatic operation would be possible. Other changes of a like nature will occur to those skilled in the art.

While the invention has been described in connection with the construction and operation of a pistol, it will be understood that it may be employed in any type of gas-operated gun, as, for instance, a rifle.

While the invention has been described in connection with a specific embodiment thereof, then, it will be understood that it is capable of further modification, and this application is intended to cover any variations, uses, or adaptations of the invention following, in general, the

principles of the invention and including such departures from the present disclosure as come within known or customary practice in the art to which the invention pertains and as may be applied to the essential features hereinbefore set forth, and as fall within the scope of the invention or the limits of the appended claims.

Having thus described by invention, what I claim is:

1. In a magazine gun, a barrel having a breech bore, a magazine having a chamber for missile storage, said magazine being oscillatably movable about an axis at right angles to the axis of said barrel between two limit positions, said limit positions corresponding to the cocked position and the loading positions of the gun, respectively, said chamber in the loading position being in registry with said breech bore, a high-pressure gas supply source, a duct in said magazine for conducting gas from said high pressure supply source to said breech bore to supply power for firing a missile from the barrel by gas pressure, a valve normally preventing connection of said gas supply with said duct, a trigger operable to open said valve to connect said supply source to said duct, means operable by firing the gun to move said magazine to the loading position to bring said chamber into registry with said breech bore and to cut off said supply of gas, and means to move a missile from said chamber into the breech bore while the chamber is so registered.

2. A gas-powered gun comprising a gun cocking mechanism, a gas-operated reciprocable piston, a gun barrel having a breech end to which gas is supplied for firing a missile from the gun, said barrel also having a port intermediate its ends, means connecting said port with said piston to admit gas from said barrel to one side of said piston after said gun has been fired and the missile has traveled past said port, thereby to move said piston, and means connecting said piston to said gun cocking mechanism to actuate said mechanism to cock said gun upon movement of said piston.

3. A gas-powered gun having a barrel, a breech bore, a magazine movable relative to said barrel and into registry with said breech bore, a gas-operated reciprocable piston, said gun barrel having a port intermediate its ends, means constantly urging said piston to one limit position of its reciprocatory movement, means connecting said port with said piston to move said piston against the resistance of the last named means after said gun has been fired and a missile has traveled past said port, means connecting said piston to said magazine to move said magazine into registry with said breech bore upon said movement of said piston, and means to move a missile from said magazine into the breech bore while said magazine is in registry with said breech bore.

4. In a magazine gun having a barrel, a breech bore, a magazine having a chamber for missile storage, said magazine being movable about an axis at an angle to which axis of said barrel to move said chamber into registry with said breech bore, said gun barrel having a port intermediate its ends, a gas-operable reciprocable piston, means constantly urging said piston to one limit position of its reciprocatory movement, means connecting said port with said piston to move said piston against the resistance of the last-named means after a missile has traveled past said port in the firing of said gun, means connecting said piston to said magazine to move said magazine to bring said chamber into registry with said breech bore upon movement of said piston, and means to move a missile from said magazine into said breech bore while said chamber is in registry with said breech bore.

5. A magazine gun comprising a barrel, a breech having a bore, a magazine having an elongate chamber adapted to hold a plurality of missiles for said gun in columnar relation, spring means mounted in said magazine constantly to urge said column of missiles forward in said chamber, said magazine being pivotally mounted for movement about an axis at an angle to the axis of said barrel to move said chamber into registry with said

breech bore, means operable by firing the gun to move said magazine in one direction about its axis to bring said chamber into registry with said breech bore, means operable upon registry of said chamber with said breech bore to meter the loading of a single missile into said breech bore by said spring, and means to pivot said magazine in the opposite direction about its axis to move said chamber out of registry with said breech bore after loading.

6. In a magazine gun, a barrel, a breech having a bore which is in axial alignment with the bore of said barrel, a magazine having a chamber adapted to hold a plurality of missiles, a metering member slidable into and out of the breech bore in a direction transverse to the axis of said breech bore, said metering member being constructed to admit only one missile at a time into the bore of said breech, and lost-motion connecting means connecting said metering member with said magazine whereby upon movement of said metering member in one direction said metering member is first moved to metering position and thereafter said chamber is brought into registry with the bore of said breech, and whereby upon subsequent movement of said magazine in the opposite direction said chamber will be moved out of registry with the bore of said breech before said metering member is moved out of metering position, and means for moving the foremost missile out of said magazine into the bore of said breech when said chamber is in registry with the bore of said breech.

7. In a magazine gun as claimed in claim 6, means operative upon firing of said gun for effecting movement of said metering member in said one direction and for effecting subsequent movement of said magazine in said opposite direction.

8. In a magazine gun as claimed in claim 6, a source of supply of gas under pressure, a duct for connecting said source of supply with the bore of said breech, a valve for closing off flow of gas from said source through said duct, a trigger, means operative upon actuation of said trigger to open said valve to supply gas to said bores to propel a missile from the gun, means operative upon firing of said gun to cock the last-named means and to move said metering member in said one direction and to effect subsequent movement of said magazine in said opposite direction.

9. A magazine gun, as claimed in claim 6 in which said magazine has a forward wall which slides on the rear wall of said breech during movement of said magazine into and out of chamber-registering position, whereby said rear wall acts to prevent feed of other missiles into the gun during said subsequent movement of said magazine in said opposite direction.

10. In a magazine gun, a barrel, a magazine having a chamber adapted to hold a plurality of missiles, means for moving said magazine to move said chamber into and out of registry with said barrel, means in said magazine for moving the foremost missile out of said chamber into said barrel when said chamber registers with said barrel, a duct in said magazine, said duct being offset from said chamber whereby when said chamber registers with said barrel said duct is out of registry with the barrel and vice versa, a source of supply of gas under pressure, a passageway including said duct for connecting said source with said barrel to supply gas for propelling a missile from said barrel, a valve for closing off flow of gas from said source through said passageway, a trigger, and means operable by said trigger for opening said valve.

11. In a magazine gun as claimed in claim 10, means operated by firing of said gun for moving said magazine to register said chamber and said duct successively with said barrel, and means also operated by firing of said gun for cocking said trigger.

12. In a magazine gun, a barrel, a breech having a bore in axial alignment with the bore of said barrel, said

breech having a slot therein extending transversely of its bore, a metering slide reciprocable in said slot, a magazine mounted for pivotal movement about an axis extending at right angles to the axis of said bores, said magazine having a chamber therein adapted to hold a plurality of missiles, a duct offset from said chamber, a lever mounted for pivotal movement independent of said magazine, means connecting said lever to said slide to move said slide upon movement of said lever, a lost-motion connection for connecting said lever to said magazine, means operable upon firing of said gun to rock said lever in one direction to first move said metering slide to metering position in the bore of said breech and to then move said magazine to register said chamber with the bore of said breech, means for then moving said magazine in the opposite direction to move said chamber out of and to move said duct into registry with the bore of said breech, means for moving the foremost missile out of said magazine into the bore of said breech when said chamber registers with the bore of said breech, a source of gas under pressure, a second duct leading from said source, a normally-closed valve controlling connection of the first-named duct with said second duct, a trigger, and means actuated by said trigger, when operated, to open said valve to permit gas to flow from said source to the bore of said breech to propel a missile from said gun.

13. A magazine gun as claimed in claim 12 having a hammer, means for holding the hammer cocked, and means connected to said trigger to disengage said holding means when said trigger is operated, and in which the means for rocking said lever in said one direction and for moving said hammer to cocked position comprises a reciprocable piston, means secured to said piston for rocking said lever in said one direction and for moving said hammer to cocked position upon movement of said piston in one direction and means for supplying gas to said piston upon firing of said gun to effect movement of said piston in its said one direction of movement.

14. In a magazine gun, a barrel, a breech having a bore which aligns with the bore of said barrel, a magazine having an elongate chamber for missile storage, said magazine being movable about an axis at an angle to the axis of said barrel between two limit positions, said chamber in one of said limit positions being in registry with the bore of said breech, a source of gas under pressure, means including a normally closed valve to provide communication between said source of gas and the bore of said breech, a hammer, means for holding said hammer in cocked position, a trigger for releasing said holding means, means for actuating said hammer on release of said holding means to open said valve to fire said gun, a gas-operated reciprocable piston, said gun barrel being formed with a port intermediate its ends, means connecting said port with said reciprocable piston to permit flow of gas from said barrel to said piston to move said piston in one direction after a missile has traveled past said port in the firing of said gun, means connecting said piston to said magazine to move said magazine to said one limit position to bring said chamber into registry with said breech, means to move a missile from said magazine into said breech while the chamber is in registry therewith, and means connecting said piston to said hammer for returning the hammer to cocked position upon movement of said piston.

15. In a magazine gun, a barrel, a breech having a bore which aligns with the bore of said barrel, and a magazine adapted to contain a plurality of missiles, said

magazine having an elongate chamber for missile storage in columnar relation, said magazine being movable about an axis at an angle to the axis of said barrel between two limit positions, said chamber in one of said limit positions being in registry with the bore of said breech, a source of gas under pressure, a duct connected to said source, a normally closed valve, means in said magazine for establishing communication between said duct and the bore of said breech, when said valve is opened, to permit flow of gas from said source to the bore of said breech to propel a missile from the gun, a hammer, means for holding said hammer in cocked position, a trigger for releasing said holding means, means for actuating said hammer upon release of said holding means to open said valve, a gas-operated reciprocable piston, said gun barrel being formed with a port intermediate its ends, means connecting said port with one side of said reciprocable piston to move said piston in one direction after a missile has traveled past said port in the firing of said gun, means connecting said piston to said magazine to move said magazine to said one limit position upon movement of said piston in said one direction to bring said chamber into registry with the bore of said breech, means to move a missile from said magazine into the breech while the chamber is registered therewith, and other means connecting said piston to said hammer for returning said hammer to cocked position upon movement of said piston in said one direction, to permit said valve to close.

16. A gas-powered gun having a chamber therein adapted to contain a gas under pressure, a barrel which has a port intermediate its ends, a member having a chamber therein for carrying a missile, means connected to said member to move said member back and forth between two limit positions corresponding, respectively, to the cocked and the loading positions of the gun, the second-named chamber in the loading position of said member being in registry with said barrel to permit transfer of a missile from said second-named chamber to said barrel, means for conducting gas from the first-named chamber to said barrel to fire a missile from the barrel by gas pressure, a normally-closed valve controlling connection of said first-named chamber with said conducting means, spring-actuated means operative to open said valve, a trigger for locking said spring-actuated means against operation, said trigger being manually operable to release said spring-actuated means to open said valve to connect said first-named chamber to said conducting means, means connecting said port with the first-named means and with said spring-actuated means whereby gas from said barrel is operative, after the gun has been fired and a missile has traveled past said port, to return said spring-actuated means to its locked, cocked position and to cause said member to be moved to loading position, and a spring for constantly urging said member back to its cocked position thereby to return said member to cocked position when the force of the gas from said port has spent itself.

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